

WHAT IS CLAIMED IS:

1. A calibration jig for a component recognition device to be used in making a coordinate system within a view field of the component recognition device provided for
 5 confirming an attitude of a component before the component is mounted to a to-be-mounted object, agree with a coordinate system of a component holding device for holding and mounting the component to the object,

From the calibration jig comprising:
 10 ~~a recognition part set at a flat face,~~ *pick up face of* which is to be picked-up, for reflecting light to be picked up by the component recognition device, arranged inside a periphery of the picked-up face, having a light reflectance different from that of the picked-up face, and for
 15 obtaining a point to be measured of the picked-up face which is a point necessary for the agreement of the coordinate systems.

2. A calibration jig for a component recognition device according to claim 1, wherein the recognition part
 20 is an opening bored in the picked-up face. *?*

3. A calibration jig for a component recognition device according to claim 1, which comprises a plate having the recognition part, and a reinforcing member set at an
 25 opposite face to the picked-up face for reinforcing the plate.

4. A calibration jig for a component recognition device according to claim 2, which comprises a plate having the recognition part, and a reinforcing member set at an opposite face to the picked-up face for reinforcing the plate.

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5. A calibration jig for a component recognition device according to claim 3, wherein in case of the recognition part is the opening, the reinforcing member having a recessed part formed correspondingly to the opening, the recessed part letting the component recognition device recognize a clear outline of the opening, and an inner face of the recessed part being applied in black to suppress the reflection of light.

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6. A calibration jig for a component recognition device according to claim 4, wherein in case of the recognition part is the opening, the reinforcing member having a recessed part formed correspondingly to the opening, the recessed part letting the component recognition device recognize a clear outline of the opening, and an inner face of the recessed part being applied in black to suppress the reflection of light.

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7. A calibration jig for a component recognition device according to claim 5, wherein the opening is formed at four points correspondingly to four corners of the picked-up face of a rectangular shape. no anti bases

8. A calibration jig for a component recognition device according to claim 6, wherein the opening is formed at four points correspondingly to four corners of the picked-up face of a rectangular shape.

5 9. A component mounting apparatus for handling the calibration jig for the component recognition device according to claim 1.

10 10. A component mounting apparatus for handling the calibration jig for the component recognition device according to claim 4.

11. A component mounting apparatus for handling the calibration jig for the component recognition device according to claim 6.

15 12. A component mounting apparatus for handling the calibration jig for the component recognition device according to claim 8.

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20 13. A component mounting apparatus according to claim 9, wherein the component recognition device illuminates the picked-up face of the calibration jig thus recognizing the recognition part, and is provided with an image processing device which operates a position of the recognition part through the recognition of the recognition part, calculates at least a resolution of the component recognition device based on a result of the operation, and calculates a
25 rotational angle representing a shift of the coordinate

system of the component recognition device to the coordinate system of the component holding device.

14. A component mounting apparatus according to claim 12, wherein the component recognition device illuminates
5 the picked-up face of the calibration jig thus recognizing the recognition part, and is provided with an image processing device which [?]operates a position of the recognition part through the recognition of the recognition part, calculates at least a resolution of the component
10 recognition device based on a result of the operation, and calculates a rotational angle representing a shift of the coordinate system of the component recognition device to the coordinate system of the component holding device.

15. A component recognition calibration method using the calibration jig for the component recognition device according to claim 1,

the method comprising:

illuminating the picked-up face of the calibration jig;

20 recognizing the recognition part by the component recognition device [?]thus operating a position of the recognition part;

calculating a resolution of the component recognition device on a basis of a result of the operation; and

25 calculating a rotational angle representing a shift of

the coordinate system of the component recognition device
to the coordinate system of the component holding device. 112/29 d

16. A component recognition calibration method using
the calibration jig for the component recognition device
5 according to claim 4,

the method comprising:

illuminating the picked-up face of the calibration
jig;

recognizing the recognition part by the component
10 recognition device thus operating a position of the
recognition part;

calculating a resolution of the component recognition
device on a basis of a result of the operation; and

calculating a rotational angle representing a shift of
15 the coordinate system of the component recognition device
to the coordinate system of the component holding device.

17. A component recognition calibration method using
the calibration jig for the component recognition device
according to claim 6,

20 the method comprising:

illuminating the picked-up face of the calibration
jig;

recognizing the recognition part by the component
recognition device thus operating a position of the
25 recognition part;

calculating a resolution of the component recognition device on a basis of a result of the operation; and

calculating a rotational angle representing a shift of the coordinate system of the component recognition device
5 to the coordinate system of the component holding device.

18. A component recognition calibration method using the calibration jig for the component recognition device according to claim 8,

the method comprising:

10 illuminating the picked-up face of the calibration jig;

recognizing the recognition part by the component recognition device thus operating a position of the recognition part;

15 calculating a resolution of the component recognition device on a basis of a result of the operation; and

calculating a rotational angle representing a shift of the coordinate system of the component recognition device to the coordinate system of the component holding device.

20 19. A component recognition calibration method according to claim 15, the calculating the resolution of the component recognition device and the rotational angle comprising:

obtaining the point to be measured of the calibration
25 jig on the basis of the position of the recognition part

obtained through the operation;

thereafter, moving the calibration jig over the component recognition device in X, Y directions orthogonal to each other on a plane;

5 calculating the resolution of the component recognition device from a movement distance of the point to be measured and an actual movement distance, the movement distance being obtained by the component recognition device based on a locus of the point to be measured; and

10 calculating the rotational angle from a shift of a movement direction in the X or Y direction of the point to be measured to a regulated X-axis or Y-axis.

20. A component recognition calibration method according to claim 18, the calculating the resolution of
15 the component recognition device and the rotational angle comprising:

obtaining the point to be measured of the calibration jig on the basis of the position of the recognition part obtained through the operation;

20 thereafter, moving the calibration jig over the component recognition device in X, Y directions orthogonal to each other on a plane;

calculating the resolution of the component recognition device from a movement distance of the point to
25 be measured and an actual movement distance, the movement

distance being obtained by the component recognition device based on a locus of the point to be measured; and

calculating the rotational angle from a shift of a movement direction in the X or Y direction of the point to be measured to a regulated X-axis or Y-axis.

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